

Exhibit F

Critical Areas Reporting Requirements

- I. General Information
- II. Fish and Wildlife Habitat Conservation Areas Reporting Requirements
- III. Wetland Reporting Requirements
- IV. Frequently Flooded Areas Reporting Requirements
- V. Geologically Hazardous Areas Reporting Requirements
- VI. Critical Aquifer Recharges Areas (Wellhead Protection) Reporting Requirements
- VII. Stream and Wetland Mitigation Plans

The following information is required to be submitted for sites containing critical areas.

I. General Information (required for all critical areas).

- A. Name of proposal as shown on City applications.
- B. Name of applicant as shown on City applications.
- C. Name of organization and individual providing this information.
- D. List any technical expertise/special qualifications of person providing this information.
- E. Date the information was prepared.
- F. Location of the proposed activity (street address and tax parcel number), including a vicinity map.
- G. Clearly identify the development proposal being addressed; including City file number and key project drawing references (originator of drawings, originator's reference number if shown on the drawings, sheet numbers, revision numbers and dates for each sheet, and include reduced copies of key drawings in the report).
- H. Give a succinct but inclusive description of the existing site, including acreage and current and past uses on the property.
- I. A copy of an aerial photo with overlays displaying site boundaries and critical areas.
- J. A single map showing all critical areas at one inch equals 20 feet scale, depicting:
 - 1. Identified critical areas and required buffers;
 - 2. Limits of any areas to be disturbed;
 - 3. Site boundary property lines and roads;
 - 4. Rights-of-way and easements;

Exhibit F

5. Existing physical improvements (buildings, fences, impervious surfaces, utilities, etc.);
 6. Contours at two-foot intervals;
 7. All natural and manmade features within the maximum buffer area of any critical area on or near the site (in no case less than a minimum 50 feet from the site).
- K. A statement specifying the accuracy of the report and key project specific assumptions made and relied upon. List recommendations, if any, for further reporting regarding critical areas related to the proposed project as the project proceeds.
- L. Provide a bibliography of published information referenced, including maps and best available science materials.

For sites with mitigation, also provide the following information identified in M through Q below. (Information in this section is to be provided only if there are critical areas within or in the vicinity of the site that will be impacted by the proposed project.)

- M. A summary description of reasonable efforts made to apply mitigation sequencing pursuant to RCDG 20D.140.10-010, Mitigation Standards, Criteria and Plan Requirements, to avoid, minimize, and mitigate impacts to critical areas.
- N. Plans for adequate mitigation, as needed, to offset any impacts, including, but not limited to:
1. The impacts to on-site and affected off-site critical areas; and
 2. The impacts of any proposed alteration of a critical area or buffer on the development proposal, other properties, and the environment.
- O. A listing of applicable performance standards and a summary of how each applicable performance standard was addressed. (See RCDG 20D.140.10-120, Performance Standards for Mitigation Planning).
- P. A discussion of ongoing management practices that will protect the critical area after the project site has been developed, including proposed monitoring and maintenance programs.
- Q. Additional information may be required. The Technical Committee may require additional information to be included in the critical areas report when deemed necessary to the review of the proposed activity.
- II. Fish and Wildlife Habitat Conservation Areas Reporting Requirements (includes streams).**

Exhibit F

A fish and wildlife habitat conservation areas report shall be prepared by a qualified professional who is a biologist with experience preparing reports for the relevant type of habitat.

Wildlife Report Requirements (in addition to the General Information listed in Section I above).

- A. A wildlife report must be submitted to the City for review. The purpose of the report is to determine the extent, function and value of wildlife habitat on any site where regulated activities are proposed. The report will also be used by the City to determine the sensitivity and appropriate classification of the habitat, appropriate wildlife management requirements, and potential impacts of proposed activities. The information required by this report should be coordinated with the study and reporting requirements for any other critical areas located on the site.
- B. The report shall include the following information:
 - 1. A map drawn at an engineering scale of one inch equals 20 feet of vegetative cover types, reflecting the general boundaries of different plant communities on the site.
 - 2. A description of the species typically associated with the cover types, including an identification of any species of concern, priority species, and species of local importance that might be expected to be found.
 - 3. The results of searches of DNR's Natural Heritage and Non-Game Data System databases.
 - 4. The result of searches of the Washington Department of Wildlife Priority Habitat and Species database.
 - 5. Habitat Assessment. A habitat assessment is an investigation of the project area to evaluate the presence or absence of a potential (listed) fish or wildlife species of concern or habitat. A fish and wildlife habitat conservation area report shall contain a written assessment of habitats, including the following site and proposal related information at a minimum:
 - a. General site conditions including topography, waterbodies, and wetlands.
 - b. Detailed description of vegetation on and adjacent to the project area.
 - c. Identification of any areas that have previously been disturbed or degraded by human activity or natural processes.
 - d. The layers, diversity and variety of habitat found on the site.

Exhibit F

- e. Identification of edges between habitat types and any species commonly associated with that habitat.
 - f. The location of any migration or movement corridors.
 - g. A narrative summary of existing habitat functions and values.
 - h. Identification of any species of local importance, priority species, threatened, sensitive, or candidate species that have a primary association with the habitat on or adjacent to the project area, and assessment of potential impacts to the use of the site by the species.
 - i. A discussion of any local, state, or federal management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the project area.
 - j. Identification of any core preservation areas that are on or adjacent to the site. See RCDG 20D.140.20-010(1) for areas considered core preservation areas. Map and describe these areas.
 - k. Identification of any quality habitat areas that are on the site. See RCDG 20D.140.20-010(3) for areas considered quality habitat areas. Map and describe these areas. This shall include an analysis of size, community diversity, interspersions, continuity, forest vegetation layers, forest age, and invasive plants.
 - l. A summary of proposed habitat alterations and impacts and proposed habitat management program. Potential impacts may include but are not limited to clearing of vegetation, fragmentation of wildlife habitat, expected decreases in species diversity or quantity, changes in water quality, increases in human intrusion, and impacts on wetlands or water resources.
 - m. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve the existing habitats and restore any habitat that was degraded prior to the current proposed land use activity and to be constructed in accordance with RCDG 20D.140.10-110, Mitigation Standards, Criteria, and Plan Requirements.
6. Habitat Unit Assessment Forms. One completed form is required for each habitat unit identified on site.
7. Additional Information. When appropriate due to the type of habitat or species present, or the project area conditions, the Technical Committee may also required the habitat management plan to include:

Exhibit F

- a. An evaluation by an independent qualified professional regarding the applicant's analysis and the effectiveness of any proposed mitigating measures or programs to include any recommendations as appropriate.
- b. A request for consultation with the Washington Department of Fish and Wildlife or the local Native American Indian tribe.
- c. Detailed surface and subsurface hydrologic features both on and adjacent to the site.

Stream Reconnaissance Report Requirements (in addition to the General Information listed in Section I above).

A stream reconnaissance report shall be prepared by a qualified stream biologist or stream ecologist.

- A. A stream reconnaissance report must be submitted to the City for review. The purpose of the report is to determine the physical and biological characteristics and functions and values of streams on any site where regulated activities are proposed. The report will also be used by the City to establish appropriate buffer requirements. The information required for this report should be coordinated with the study and reporting requirements established for any other critical areas located on the site.
- B. The ordinary high water mark shall be flagged in the field by a qualified consultant. Field flagging must be distinguishable from other survey flagging on the site. The field flagging must be accompanied by a stream reconnaissance report.
- C. The report shall include the following information:
 1. Streams Map. Stream ordinary high water marks (OHWM) shall be located on a site map with an engineering scale of one inch equals 20 feet. The map must show:
 - a. Surveyed locations of all stream OHWMs on the property;
 - b. Hydrologic mapping showing patterns of water movement into, through, and out of the site area.
 2. Stream Reconnaissance Report. A written stream reconnaissance report which includes the following information:
 - a. A written stream assessment. This assessment shall describe specific descriptions of streams, including stream classification, gradient and flow characteristics, stream bed condition, stream bank and slope stability, presence of fish or habitat for fish, presence of obstruction to fish

Exhibit F

movement, general water quality, stream bank vegetation, and stream buffer requirements.

- b. A written characterization of the riparian corridor. This characterization shall include analysis of the stream buffer to provide the following key functions: shade and temperature regulation, flood conveyance, water quality protection and pollutant removal, nutrient cycling, sediment transport, bank stabilization, woody debris recruitment, wildlife habitat, and microclimate control.
- c. A written summary of existing stream value for fisheries habitat, including special consideration for anadromous fisheries. This shall include a discussion on the stream's potential for salmonid and non-salmonid fish use. Parameters to be analyzed include, but are not limited to, distance of bank full width, channel gradient, size of contributing upstream areas, and fish passage obstructions, if any.
- d. A written discussion of measures including avoidance, minimization, and mitigation to preserve the existing riparian corridor and restore areas that were degraded prior to the current proposed land use activity. This shall include a summary of proposed stream and buffer alterations, impacts, and the need for the alterations as proposed. Potential impacts may include but are not limited to vegetation removal, stream bed and stream bank alterations, alteration of fisheries habitat, changes in water quality, and increases in human intrusion. If alteration of a stream is proposed, a stream mitigation plan is required according to the standards of RCDG 20D.140.20-040, Alteration or Riparian Stream Corridors and 20D.140.20-060, Riparian Stream Corridor Performance Standards.

3. Stream summary sheet.

III. Wetland Reporting Requirements (In addition to the General Information listed in Section I above).

A wetland report shall be prepared by a qualified professional who is a certified wetland scientist or a wetland biologist.

- A. A wetland report must be submitted to the City for review. The purpose of the report is to determine the extent, characteristics, functions, and values of any wetlands located on a site where regulated activities are proposed. The report will also be used by the City to determine the appropriate wetland rating and to establish appropriate buffer requirements. The information required by this report should be coordinated with the study and reporting requirements for any other critical areas located on the site.
- B. Wetland boundaries must be staked and flagged in the field by a qualified consultant employing the Washington State Wetlands Identification and Delineation Manual. Field

Exhibit F

flagging must be distinguishable from other survey flagging on the site. The field flagging must be accompanied by a wetland delineation report. Transects shall be required for all wetland identifications, regardless of size. Note that wetland determinations made during the late summer months (July – Sept.) and early fall (Sept. – Oct.) may lack a wetland water regime due to low precipitation. A “wet weather” evaluation may be required.

C. The report shall include the following information:

1. Wetland Map. Wetlands shall be located on a site map with an engineering scale of one inch equals 20 feet. The map must show:
 - a. Delineated wetland boundary and required buffers.
 - b. Hydrologic mapping showing patterns of water movement into, through, and out of the site area.
 - c. Location of all test holes and vegetation sample sites, numbered to correspond with flagging in the field and field data sheets.
2. Site designated on a National Wetland Inventory Map (U.S. Fish and Wildlife Service) and a City of Redmond Wetland Inventory Map.
3. Wetland Delineation Report. A written wetland delineation report which includes the following information:
 - a. Delineation methodology, with special emphasis on whether the approach used was routine, intermediate, or comprehensive, as described in the Wetland Manual. This shall include an explanation of how the wetland boundary was determined. The explanation shall identify assumptions made and provide clarification of “close calls.”
 - b. A written wetland assessment. This assessment shall describe specific descriptions of wetlands, including wetland category, classification using the USFWS (Cowardin) Method, vegetative, faunal and hydrologic characterization, soil and substrate conditions, wetland acreage, and required buffers.
 - c. A written wetland characterization and wetland functions assessment. Wetland characterizations shall use the Wetland Rating System for Western Washington. This characterization identifies the wetland category. The wetland category and “score” shall be part of the description for each wetland. This characterization shall include an analysis of the wetland’s ability to provide the following key functions: provide wildlife, plant, and fisheries habitat; moderate runoff volume and flow rates; reduce sediment, chemical nutrient, and toxic pollutants; provide shading to

Exhibit F

maintain desirable water temperatures; reduce erosion; and reduce groundwater and surface water pollution. A wetland functions assessment shall be completed for each wetland to establish a baseline that provides a semi-qualitative description for each wetland. A functions assessment must evaluate existing conditions and conditions after development without mitigation. Those functions assessments found acceptable by the Department of Ecology and best available science include the Washington Function Assessment Method and the Linear Method.

- d. A summary of proposed wetland and buffer alterations, impacts, and the need for the alterations as proposed. This shall include a mitigation sequencing analysis. Potential impacts may include but are not limited to loss of flood storage potential, loss of wildlife habitat, expected decreases in species diversity or quantity, changes in water quality, increases in human intrusion, and impacts on associated wetland or water resources. If wetland impacts are proposed, a wetland mitigation plan is required according to the standards of RCDG 20D.140.10-120, Performance Standards for Mitigation Planning.
4. Field data sheets from the Wetland Manual, numbered to correspond with sample site locations as staked and flagged in the field. This includes Data Form 1: Routine Wetland Determination as identified in Appendix B of the Washington State Wetlands Identification and Delineation Manual.
5. Wetland rating forms for each wetland as identified in the Washington State Wetland Rating System for Western Washington.
6. Wetland summary sheet.

IV. Frequently Flooded Areas Reporting Requirements (In addition to the General Information listed in Section I above).

A frequently flooded area report shall be prepared by a qualified professional who is a hydrologist, or engineer, who is licensed in the State of Washington with experience in preparing flood hazard assessments.

- A. A frequently flooded area report must be submitted to the City for review for Shorelines of the State (and other watercourses if specifically requested in the review process). The purpose of this report is to ensure the development complies with City of Redmond and Federal Emergency Management Agency (FEMA) requirements and guidelines. The report must include the following site and proposed related information at a minimum:
 1. Floodplain Map. Floodplains shall be located on a site map with an engineering scale of one inch equals 20 feet. The map must show the following:

Exhibit F

- a. The location of the FEMA 100-year floodplain, the “Built Out” 100-year floodplain, the FEMA floodway, and the zero-rise floodway.
 - b. All proposed development within the Built Out 100-year floodplain.
 - c. Elevation of the lowest floor (including basements and excavated crawl spaces) of all structures.
 - d. Location of and proposed grading for compensatory floodplain storage, if required per RCDG 20D.140.40-030(2)(a).
2. Flood Hazard Summary. A written flood hazard summary shall be provided that includes the following:
- a. Descriptions and engineering calculations that support the locations of the 100-year FEMA and zero-rise floodplains within the site (see guidelines below).
 - b. Descriptions and engineering calculations that support the locations of the 100-year FEMA and zero-rise floodways within the site (see guidelines below).
 - c. A statement to verify that fill and structures will not be located within floodways.
 - d. Verification that any proposed changes (including utilities, plantings, walkways, etc.) within the floodways will not affect the hydraulic capacities of the floodways. Supporting calculations will be required if changes are proposed in the floodways.
 - e. Verification that hydraulically equivalent compensating storage is provided if such storage is required for the site per RCDG 20D.140.40-030(2)(a).
- B. Locating the Edge of the Floodplain for a Site. This section provides a method to locate the edge of the floodplain for a site so as to conform to detailed topographic mapping at a site plan scale. The basic approach is to use elevations of the water surface at flood stage and project the elevations along cross-sections until they intersect with the site scale topographic map.

The resulting floodplain defined for the site must be checked by engineering calculations to verify adequate conveyance with no increase in the flood stage water surface elevations for the floodplain. Include the following for both the FEMA and zero-rise floodplains:

Exhibit F

1. Appropriate data from current floodplain studies and maps including flood profiles, selected cross-section locations, flood elevations for each cross-section, and base flood discharge(s).
 2. Actual field topography with appropriate contours for the entire floodplain within the site plus the floodplain on the opposite side of the stream plus the floodplain upstream and downstream of the site for at least 100 feet.
 3. Cross-section locations on the site topography map showing intersections of the flood elevations with the topographic elevations. These intersection points are then connected, using topographic information, to outline the floodplain.
 4. Verification, by hydraulic calculations, that the base flood discharge can be accommodated within the defined floodplain and within the flood elevations. (Contact Development Services for level of calculations required.)
 5. Proposed topographic adjustments, based on site-specific situations, to provide adequate hydraulic capacity if hydraulic calculations do not verify such capacity which are acceptable to the Technical Committee.
- C. Locating the Current Floodway Limits for a Site. This section provides a way to apply and adjust the floodway maps for a site. The adopted floodway maps are official documents. Changes to the FEMA map generally require FEMA approval. Both FEMA and the City recognize, however, that more detailed site-scale topography and the difficulties in scaling the floodway map dictate that map refinements must frequently be done when working at the site plan scale. Include the following for both the FEMA and zero-rise floodways:
1. An appropriate section of the current floodplain maps enlarged to site plan scale. The section of the map needs to include the entire site, the entire floodplain on the opposite side of the stream, and the floodplain 100 feet upstream and downstream of the site.
 2. Appropriate data from current floodway studies including flood profiles, selected cross-section locations, flood elevations for each cross-section, and base flood discharges.
 3. Actual field topography with appropriate contours for the entire floodplain within the site plus the floodplain on the opposite side of the stream plus the floodplain upstream and downstream of the site for at least 100 feet. Show cross-section locations on this topographic map.
 4. Location of the floodway limits from the enlarged floodway map on the topographic map.

Exhibit F

5. Adjustments to the floodway location as required to reconcile the site topography and the flood profiles. Clearly identify all proposed adjustments.
6. Verification that the floodway study discharge can be accommodated within the floodway (including adjustments approved by the Technical Committee) and within regulatory water surface elevations and velocities.

V. Geologically Hazardous Areas Reporting Requirements (in addition to the General Information listed in Section I above).

A geologically hazardous areas report shall be prepared by a geotechnical engineer or geologist, licensed in the State of Washington, with experience analyzing geologic, hydrologic, and groundwater flow systems; or by a geologist who earns his or her livelihood from the field of geology and/or geotechnical analysis, with experience analyzing geologic, hydrologic and groundwater flow systems, who has experience preparing reports for the relevant type of hazard.

- A. A geologically hazardous area report must be submitted to the City. The purpose of this report is to evaluate the actual presence of geologic conditions giving rise to geologic hazards; determine the appropriate class of hazard, according to the classification of potential hazards contained in these regulations; evaluate the safety and appropriateness of proposed activities; and recommend appropriate construction practices, monitoring programs and other mitigation measures required to ensure achievement of the purpose and intent of these regulations. The information required by this report should be coordinated with the study and reporting requirements for any other critical areas located on the site.
- B. The approach of the City of Redmond critical area regulations is to require a level of study and analysis commensurate with potential risks associated with geologic hazards on particular sites and for particular proposals. Depending on the particular geologic hazard, geologic, hydrologic and/or topographic studies may be required. At a minimum, all applicants shall review the history of the site and conduct a surface reconnaissance.
- C. Geologically Hazardous Area Report. The geologically hazardous area report shall include the following information:
 1. Geologically Hazardous Areas Map. Geologic hazards shall be located on a site map with an engineering scale of one inch equals 20 feet. The map must show the surveyed locations of all geologic hazards and their required buffers/setbacks. In addition, the map must show topography at two-foot intervals.
 2. A written geologically hazardous area report which includes the following information:
 - a. A written geologic hazards characterization. This characterization shall describe specific descriptions of geologic hazards present on site, including topography; a characterization of soils, geology, and drainage; a

Exhibit F

characterization of groundwater conditions including the presence of any public or private wells within one quarter mile of the site; and groundwater elevation, gradient and direction data, including depth and duration of seasonally high water table if any proposed grading, borings, pilings or excavation work may extend to groundwater depth; identification of any areas that have previously been disturbed or degraded by human activity or natural processes; and a site history.

- b. A written analysis of proposed clearing, grading and construction activities, including construction scheduling; potential direct and indirect, on-site and off-site impacts from development, including dewatering activities. The analysis shall include identification of proposed mitigation measures, including any special construction techniques, monitoring or inspection program, erosion or sedimentation programs (during and after construction), and surface water management and protection controls.
3. Critical Landslide Hazard Areas (Steep Slopes). In addition to the geologically hazardous area report required above, the following tasks and information are required for critical landslide hazard areas.
- a. Review site history and available information.
 - b. Conduct a surface reconnaissance of the site and adjacent areas.
 - c. Conduct subsurface exploration suitable to site and proposal to assess geohydrologic conditions.
 - d. Conduct detailed slope stability analysis.
 - e. Recommend detailed surface water management controls during construction and operation.
 - f. Establish recommendations for site monitoring and inspection during construction.
 - g. Recommended minimum steep slope buffer distance(s). In no case, shall the setback be less than that required by RCDG 20D.140.60-020.
4. Critical Erosion Hazard Areas. In addition to the geologically hazardous area report required above, the following tasks and information are required for critical erosion hazard areas:
- a. Review site history and available information.
 - b. Conduct a surface reconnaissance of the site and adjacent areas.

Exhibit F

- c. Identify surface water management, erosion and sediment controls appropriate to the site and proposal.
- 5. Seismic Hazard Areas. In addition to the geologically hazardous area report required above, the following tasks and information are required for seismic hazard areas:
 - a. For one- and two-story single-family structures, conduct an evaluation of site response and liquefaction potential based on the performance of similar structures under similar foundation conditions.
 - b. For all other proposals, conduct an evaluation of site response and liquefaction potential including sufficient subsurface exploration to provide a site coefficient (S) for use in the static lateral force procedure described in the International Building Code.

VI. Critical Aquifer Recharges Areas (Wellhead Protection) Reporting Requirements (in addition to the General Information listed in Section I above and the general information listed in Section V above).

A critical aquifer recharge areas report shall be prepared by a qualified professional who is a hydrogeologist, geologist, or engineer, who is licensed in the State of Washington and has experience in preparing hydrogeologic assessments.

- A. A critical aquifer recharge area report must be submitted to the City. The purpose of the report is to evaluate the actual presence of geologic conditions giving rise to the critical aquifer recharge area; determine the appropriate wellhead protection zone; evaluate the safety and appropriateness of proposed activities; and recommend appropriate construction practices, monitoring programs and other mitigation measures required to ensure achievement of the purpose and intent of these regulations. The information required by this report should be coordinated with the study and reporting requirements for any other critical areas located on the site.
- B. The approach of the City of Redmond critical area regulations is to require a level of study and analysis commensurate with potential risks to wellhead protection areas associated with particular sites and particular proposals. Geologic, hydrologic and/or topographic studies may be required. At a minimum, all applicants shall review the history of the site and conduct a surface reconnaissance.
- C. Hydrologic Assessment Required. For all proposed activities to be located in a critical aquifer recharge area, a critical aquifer recharge area report shall contain a level one hydrological assessment. A level two hydrogeologic assessment shall be required for any of the following proposed activities:
 - 1. Activities that result in 5,000 square feet or more impervious site area.

Exhibit F

2. Activities that divert, alter, or reduce the flow of surface or groundwaters, including dewatering or otherwise reduce the recharging of the aquifer.
 3. The storage, handling, treatment, use, production, recycling or disposal of deleterious substances or hazardous materials, other than household chemicals used according to the directions specified on the packaging for domestic applications.
 4. The use of injection wells, including on-site septic systems, except those domestic septic systems releasing less than 14,500 gallons of effluent per day and that are limited to a maximum density of one system per one acre.
 5. Any other activity determined by the Committee likely to have an adverse impact on groundwater quality or quantity, or on the recharge of the aquifer.
- D. Written Level One Hydrogeologic Assessment. A level one hydrogeologic assessment shall include the following site and proposal related information at a minimum:
1. Available information regarding geologic and hydrogeologic characteristics of the site including the surface location of all critical aquifer recharge areas located on site or immediately adjacent to the site, and permeability of the unsaturated zone.
 2. Groundwater depth, flow direction and gradient based on available information.
 3. Currently available data on wells and springs within 1,300 feet of the project area.
 4. Location of other critical areas, including surface waters, within 1,300 feet of the project site.
 5. Available historic water quality data for the area to be affected by the proposed activity.
 6. Best management practices proposed to be utilized.
- E. Written Level Two Hydrogeologic Assessment. A level two hydrogeologic assessment shall include the following site and proposal related information at a minimum, in addition to the requirements for a level one hydrogeological assessment:
1. Historic water and elevation quality data for the area to be affected by the proposed activity compiled for at least the previous five year period.
 2. Groundwater monitoring plan provisions.
 3. Discussion of the effects of the proposed project on the groundwater quality and quantity, including:

Exhibit F

- a. Predictive evaluation of groundwater withdrawal effects on nearby wells and surface water features.
 - b. Predictive evaluation of contaminant transport based on potential releases to groundwater.
 - c. Predictive evaluation of groundwater (recharge, elevation, dewatering feasibility, constructability, discharge permitting, etc.) on the proposed project.
4. Identification of the type and quantities of any deleterious substances or hazardous materials that will be stored, handled, treated, used, produced, recycled, or disposed of on the site, including but not limited to materials such as elevator lift/hydraulic fluid, hazardous materials used during construction, materials used by the building occupants, proposed storage and manufacturing uses, etc.
 5. Proposed methods of storing any of the above substances, including containment methods to be used during construction and/or use of the proposed facility.
 6. Proposed plan for implementing Protection Standards During Construction (RCDG 20D.140.50-040(10(f))).
 7. A spill plan that identifies equipment and/or structures that could fail, resulting in an impact. Spill plans shall include provisions for regular inspection, repair, and replacement of structures and equipment that could fail.
 8. A complete discussion of past environmental investigations, sampling, spills, or incidents that may have resulted in or contributed to contaminated soil or groundwater at the site. Attach copies of all historical and current reports and sampling results.

VII. Stream and Wetland Mitigation Plans

Conceptual Mitigation Plan – The applicant shall submit a conceptual mitigation plan, prepared by a qualified consultant, when filing for entitlement or plat approval. The plan must have adequate detail to demonstrate that impacts can be mitigated such that they achieve no net loss of functions and values. The conceptual mitigation plan/report shall include:

- A. **Executive Summary of CAO Report:** Prepare executive summary for the plan. Summarize the project, its impacts, and the proposed mitigation, if required. This may be a ½ to 2 page summary of the plan contents, depending on the complexity of the project and the length of the plan.

Please include the following items in the Executive Summary:

Exhibit F

1. Applicant name, address, and telephone number.
2. Consultant and consultant contact information.
3. Brief description of the proposed development project (include city file number and key drawing references).
4. Location of work (street address, tax parcel number, STR [section, township, and range])..
5. A vicinity map.
6. Description of critical areas.
7. Wetland information, including
 - a. Size (square feet);
 - b. Cowardin classification;
 - c. Hydrogeomorphic (HGM) classification;
 - d. Required buffers; and
 - e. A brief summary of functions, if applicable.
8. Stream Information, including:
 - a. Classification;
 - b. Downstream connections; and
 - c. A brief justification of stream classification if different from the current City of Redmond Stream Classification Map or if unmapped.
9. Description of the measures taken to avoid and minimize impacts to critical areas (i.e. demonstrate that mitigation sequencing was followed).
10. Description of unavoidable wetland impacts and the proposed compensatory mitigation (e.g., restoration, creation, enhancement, and /or preservation), including
 - a. Size;
 - b. Cowardin classification;

Exhibit F

- c. Hydrogeomorphic (HGM) classification;
 - d. Wetland rating, if applicable;
 - e. Required buffers;
 - f. A brief summary of functions, if applicable; and
 - g. Mitigation ratios used.
11. Description of unavoidable impacts to other aquatic resources and the proposed compensatory mitigation (e.g., stream, lakes, & wildlife).
12. Other details about the proposed mitigation project, including
- a. Goals and objectives;
 - b. Proposed improvements to the functions and environmental processes of the larger watershed;
 - c. Proposed buffers for the compensatory mitigation site (width and total area);
 - d. Maintenance frequency;
 - e. Monitoring period and frequency; and
 - f. Potential adaptive management measures resulting from monitoring conclusions.

B. Assessment of Impacts. The purpose of this section of the document is to describe how the development project will affect wetlands and other aquatic resources. A development project can have long term temporary, short term temporary, indirect and direct impacts to wetlands and other aquatic resources. Describe all types of impacts. Provide detailed documentation on how wetland and other aquatic resources will be adversely affected at the proposed development site, including the following:

- 1. Area of wetland/stream impacts;
- 2. Description of water regime (stream, lakes, rivers, wetlands, subsurface flow, etc.), including:

Exhibit F

- a. Description of the source of water to the wetland being affected by the development project. If several sources are present, estimate the percentage contribution from each;
 - b. Description of hydrologic regime of the wetland being affected (i.e. rough, qualitative estimated of duration and frequency of inundation and/or saturation. Use generally accepted terms such as permanent open water, seasonally flooded, seasonally saturated, wet pasture, etc.); and
 - c. Map of the surface and groundwater flowing into the impacted area with the direction of water flow indicated.
3. Description of the soils, including:
 - a. Description of the soil characteristics of the wetland being affected including; soil type and classification; and a description of texture, color, structure, permeability, and organic content;
 - b. Soil survey map; and
 - c. Map showing soil sampling locations (typically the location of the soil pits used for delineation).
4. Description of the vegetation in and around critical areas, including qualitative descriptions of the different Cowardin (1979) classes of the wetland being affected (include subclass and water regime modifiers). If a forested class is present, also estimate the average age of the canopy species.
5. An estimate of the relative abundance of dominant and subdominant plants within each Cowardin class (use information collected during routine delineation unless more detailed data are available).
6. List of the wetland indicator status of dominant and subdominant species, including:
 - a. Description of the prevalence and distribution of non native and/or invasive species, if any are present at the wetland being affected; and
 - b. General description of upland plant communities within 330 ft. of the wetland, stream or lake being affected, if any; and
 - c. List of rare plants and plant communities that are known to occur on the development project site or adjacent properties. If any of

Exhibit F

these species are observed on the site, include descriptions of the occurrence and any potential impacts to them. Please include Department of Natural Resources database search results.

7. Description of fauna using the site, including:
 - a. Description of the animals (including amphibians) using the wetland and buffer being affected. In most cases, a list of species likely to use the habitats on the site is sufficient, with brief descriptions of the existing habitats. Note species seen and amount of time spent looking for on-site wildlife; and
 - b. Include a description of federal and state listed endangered, threatened, sensitive and candidate animal species that are known to occur in the general area of the development site, as well as observations of such species. Also, include those listed as “Priority Species” or “Species of Concern” by the Washington State Department of Fish and Wildlife (see <http://wdfw.wa.gov/hab/phspage.htm>. and <http://wdfw.wa.gov/wlm/diversity/soc/concern.htm>).
8. Position and functions of the wetland(s)/stream(s) in the landscape, including:
 - a. Class of the wetland and/or stream classification being affected by the development. Use the hydrogeomorphic classification (class and subclass) to describe its position in the watershed. Note downstream receiving waters, if any; and
 - b. Qualitative description of the functions performed by the wetland and/or stream being affected relative to the position in the watershed. This may include its role in attenuating flooding, as a corridor for wildlife between different regions of the watershed, as part of a regional flyway, or in improving water quality regionally; and
 - c. Description of the sampling and assessment methods used.
9. Description of the functions provided by the wetland(s)/stream(s), including:
 - a. Description of the functions provided by the wetland and/or stream being affected and to what level they are performed (e.g. the site provides the function “Removing Sediment” at a high level, the score for “Removing Sediment” that results from applying (name

Exhibit F

the method) is X, with X being the highest score that can be achieved); and

- b. Qualitative or quantities, description of the characteristics that enable the wetland and/or stream being affected to perform specific functions, depending on the method used.
10. Wetland rating and/or stream classifications, including:
- a. The category of the wetland being affected and/or the classification of stream being affected using the City's Critical Areas Ordinance (CAO); and
 - b. If applicable, copies of the original data sheets used to rate the wetland.
11. Information concerning buffers, including:
- a. Size (width) of the undeveloped Critical Areas Ordinance (CAO) required upland buffer being affected by the development project;
 - b. Qualitative description of the dominant vegetation in the buffer and the physical structure of plants in it; and
 - c. Maps of the buffer areas and the vegetation types.
12. Water quality information, including:
- a. Description of any known water quality problems at the development site and whether they will continue after the development project is completed; and
 - b. Assessment of whether the development project is expected to worsen or improve existing water quality conditions.

C. Proposed Mitigation Sites.

1. The following information must be provided concerning proposed mitigation sites:
- a. Location, including map showing the location of site in relation to the project impact site; and
 - b. Site ownership (current and future);

Exhibit F

- c. Site selection rationale, including a discussion of how the site fits with the environmental needs in the watershed. If watershed or regional planning efforts exist for the area, explain how the selection of the compensation site is consistent with those plans.
- d. Site constraints, including a description of the constraints at the mitigation site that could affect the success of the mitigation project and strategies used to address each constraint. (Constraints may include factors outside of the control of the applicant such as a primary water source for the mitigation wetland originating offsite, the potential for other landowners to alter the source, etc).

D. Existing (baseline) conditions of the Mitigation Site.

- 1. The following information must be provided regarding existing conditions of the mitigation site:
 - a. Historic and current land uses and zoning;
 - b. Known historic or cultural resources on the mitigation site;
 - c. Existing wetlands on or adjacent to the development site;
 - d. Maps showing current contours as surveyed. This is needed particularly when mitigation activities will alter ground elevations.
 - e. Description of the water regime;
 - f. Description of the soils;
 - g. Description of the vegetation;
 - h. Description of fauna using the site;
 - i. Position and function of the wetland(s)/stream(s) in the landscape;
 - j. Description of the functions provided by the wetland(s)/stream(s);
 - k. Wetland rating/stream classification;
 - l. Buffers; and
 - m. Water quality.

E. Mitigation Approach.

Exhibit F

1. The following information must be provided regarding the mitigation approach:
 - a. Mitigation sequencing (see RCDG 20D.140.10-080);
 - b. Project-specific goals. Identify the goal or goals of the compensatory mitigation project (e.g. provide adequate compensation for losses and degradation to wetland area and function);
 - c. Mitigation strategy, including a description in general terms of the strategies that will be used to achieve the goals;
 - d. Site specific goals, objective and performance standards for the site
 - i. The goals and objectives for a mitigation site are intended to describe the ecological functions planned for the site and how those will be achieved. Performance standards are used to evaluate whether the goals and objectives are being met. Each objective shall be matched with one or more appropriate standards along with methods for monitoring them. In addition, maintenance must be designed for each objective.
 - ii. A description of the long-term goals of the mitigation project must be included and must address:
 - A. The size of the mitigation site;
 - B. Cowardin class, hydrogeomorphic class or subclass, and categorization (rating) for the wetlands to be restored, created, enhanced and/or preserved.
 - C. Target functions and/or environmental process to be restored, created, enhanced and/or preserved.
 - iii. A description of the objectives for each goal, with a minimum of at least one measurable objective for each goal must be included.
 - iv. Performance measures of each objective must be included.

F. Description of Mitigation Design.

1. The following information must be provided regarding mitigation design:

Exhibit F

- a. Description of the water regime and how adequate amounts of water will be provided to support a wetland and/or description of enhanced stream design including any in-water features;
- b. Type of development (existing and proposed land uses);
- c. Discussion of how the mitigation plan will compensate for lost and degraded functions. Provide rationale for each proposed function and describe the design features that would contribute to providing the function; and
- d. Section drawings showing relationship of topography to water regime and vegetation.

G. Mitigation Plan Requirements.

- 1. The following information is required for mitigation plans:
 - a. Orientation and scale (1" = 20');
 - b. Existing and proposed elevation contours (2 foot contours);
 - c. Spot elevation for low points, high points, and structures;
 - d. Property Boundaries;
 - e. On-site wetland boundaries (delineated and surveyed);
 - f. On-site ordinary high water mark (OHWM) boundaries for streams, and both OHWM and floodplain boundaries for Class 1 waters (delineated and surveyed);
 - g. Survey of benchmarks;
 - h. Location and elevation of soil borings or test pits;
 - i. Location and elevation of water elevation sampling devices, if applicable;
 - j. Location of soil to be stockpiled, if any;
 - k. Description of methods of erosion control and bank stabilization;
 - l. Buffer areas for the mitigation site and their boundaries;

Exhibit F

- m. List native plant materials. Provide a table that contains the following information:

Symbol	Scientific Name	Common Name	Size	Spacing	Quantity
☼ (Example)	Thuja plicata	Western Red Cedar	6 feet	See table below	10

- i. Spacing: Triangular spacing shall be used to calculate plant density within mitigation areas (see table below);

Spacing	Multiplier	Planting Area Sq Ft	Number of Plants
4' (Example)	.0725 (Example)	2000 square feet (Example)	145 (Example)
4'	.0725		
5'	.0465		
6'	.032		
8'	.018		
10'	.0116		
12'	.008		
15'	.00515		

i

- i. Size: All plants shall have following minimum size at installation:

- A. Deciduous and Evergreen trees: minimum 5 gallon containers;
- B. Medium and tall shrubs: minimum 2 gallon containers;
- C. Groundcover: 1 gallon container (spaced at 18 inches o.c.);
- D. Emergent plants: 10 cubic inch pots (spaced at 18 inches o.c.);

- n. Other planting details (B&B, bare root, live stakes, etc.);
- o. Other habitat feature details (rootwads, stone piles, snags etc.);

Exhibit F

- p. Expected natural revegetation. From existing seed bank and natural recruitment from nearby sites.;
- q. Description of methods to control invasive species; and
- r. Description of permanent protective features (fencing and signage).

H. Irrigation Plan. If temporary irrigation is used, a plan and details shall be submitted to and approved by the City's Planning Department.

I. Monitoring Plan.

- 1. Monitoring and contingency plans shall be consistent with RCDG 20D.140.10-150. The monitoring program shall be used to determine the success of the mitigation project and any necessary corrective actions. Monitoring programs must comply with the City's guidelines set forth in RCDG 20D.140.10-150(3). Monitoring methods and components shall be consistent with RCDG 20D.140.10-150(3) (e), as outlined below:
 - a. Vegetation Monitoring: Methods shall include counts, photo points, random sampling, sampling plots, transects, visual inspections, and/or other means deemed appropriate by the Department and a qualified consultant. Vegetation monitoring components shall include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, invasive weeds, and/or other components deemed appropriate by the Department and a qualified consultant.
 - b. Water Quantity Monitoring: Methods shall include piezometers, sampling points, stream gauges, visual observation, and/or other means deemed appropriate by the Department and a qualified consultant. Water quantity monitoring components shall include water level, peak flows, soil saturation depth, soil moisture within root zone, inundation, overall water coverage, and/or other components deemed appropriate by the Department and a qualified consultant.
 - c. Water Quality Monitoring: Methods shall include testing, plant indicators, and/or other means deemed appropriate by the Department and a qualified consultant. Water quality monitoring components shall include temperature, pH, dissolved oxygen, total suspended solids, total metals, herbicides, pesticides, and/or other components deemed appropriate by the Department and a qualified consultant.

Exhibit F

- d. Wildlife Monitoring: Methods shall include visual sightings, aural observations, nests, scat, tracks, and/or other means deemed appropriate by the Department and a qualified consultant. Wildlife monitoring components shall include species counts, species diversity, breeding activity, habitat type, nesting activity, location, usage, and/or other components deemed appropriate by the Department and a qualified consultant.
 - e. Geomorphic Monitoring: Methods shall include cross-sectional surveys, profile surveys, point surveys, photo-monitoring, and/or other means deemed appropriate by the Department and a qualified consultant. Monitoring components shall include location and effect of large woody debris, depth and frequency of pools, bank erosion, channel migration, sediment transport/deposition, structural integrity of weirs, and/or other components deemed appropriate by the Department and a qualified consultant.
- 2. A map of sampling locations and description of how the locations will be determined for each monitoring event.

J. Maintenance and Contingency Plans (Text on Plan Sheet).

- 1. The following information is required for Maintenance and Contingency Plans:
 - a. Maintenance Plan (text);
 - b. Description of and reason for each maintenance activity planned; and
 - c. Contingency plan, including:
 - i. Initiating procedures; and
 - ii. Description of contingency funds.

K. Financial Assurances. The amount of the guarantees shall be based upon a detailed budget for implementation of the mitigation plan, including installation, monitoring, maintenance and contingency phases for a minimum of five years.

L. Final Mitigation Plan Set. The applicant shall submit a final mitigation plan set prepared by a qualified consultant when filing for civil construction drawings review or building permit, whichever is applicable. The final civil drawings or building permit (as applicable) shall not be approved until the final mitigation plan and bonds have been approved and accepted by the City.

Exhibit F

- M. Record Drawings.** Wetland/Stream mitigation record drawings shall be submitted to the City along with engineering record drawings. A copy of the mitigation record drawings shall be submitted to the Planning Department. The record drawings shall include a table identifying the following information for each wetland or stream on site:

Wetland(s) and/or Stream(s)	Area (sq.ft.) undisturbed wetland/stream	Area (sq.ft.) of mitigated wetland/stream	Area (sq.ft.) and width (ft.) of buffers	Linear feet (l.f.) along the centerline of undisturbed streams	Linear feet (l.f.) along the centerline of relocated stream, if any
Wetland A (Example)	560 square feet	560 square feet	625 square feet. 25 foot buffer	N/A	N/A

Exhibit F

CITY OF REDMOND HABITAT UNIT ASSESSMENT FORM

HABITAT UNIT: _____
 LOCATION: _____
 TOTAL SCORE: _____

Habitat Parameter	Scoring Criteria	Habitat Unit Score
Size	<ul style="list-style-type: none"> • >50 acres = 3 points • 10-50 acres = 2 points • 0-10 acres = 1 point 	
Vegetation Community Types	<ul style="list-style-type: none"> • ≥ 4 types = 3 points • 2-3 types = 2 points • 1 type = 1 point • None = 0 points 	
Community Interspersion	<ul style="list-style-type: none"> • High = 3 points • Medium = 2 points • Low = 1 point • None = 0 points 	
Priority Species Presence	<ul style="list-style-type: none"> • Threatened & Endangered Species = 3 points • Candidate Species = 2 points • Monitor Species = 1 point • None = 0 points 	
Priority Species Habitat Use	<ul style="list-style-type: none"> • Breeding = 3 points • Roosting = 2 points • Foraging = 1 point • None = 0 points 	
Habitat Continuity	<ul style="list-style-type: none"> • Links protected habitats = 3 points • Links unprotected habitats = 2 points • Extends habitat corridor = 1 point • None = 0 points 	
Forest Vegetation Layers	<ul style="list-style-type: none"> • 3 layers = 3 points • 2 layers = 2 points • 1 layers = 1 point • None = 0 points 	
Forest Age	<ul style="list-style-type: none"> • Mature = 3 points • Pole = 2 points • Seedling/Shrub = 1 point • None = 0 points 	
Invasive Species Presence	<ul style="list-style-type: none"> • 0-25% = 3 points • 26-50% = 2 points • 51-75% = 1 point • 75-100% = 0 points 	

Exhibit F

CITY OF REDMOND HABITAT UNIT ASSESSMENT FORM

VEGETATION COMMUNITY TYPES:

INVASIVE PLANTS:

HABITAT FEATURES (snags, perches, downed logs, etc):

WILDLIFE OBSERVATIONS (direct or indirect):

THREATS TO HABITAT INTEGRITY:

OTHER NOTES:

Exhibit F

STREAM SUMMARY SHEET

Stream Summary			Buffer Summary			Riparian Corridor Summary		
Label ¹	Type ²	Linear Feet ³	Required ⁴	Proposed ⁵	Averaging ⁶	Disturbed Area ⁷	Filled Area ⁸	Mitigation Area ⁹

¹ Stream A, B, C, etc.
² Stream type per City stream classification system.
³ Length of stream on the property.
⁴ Required buffer width in feet per RCDG.
⁵ Proposed buffer width in feet.
⁶ Note if buffer averaging is used. If so, identify minimum and maximum buffer widths in feet as well as area in square feet contained within the buffer prior to and after averaging.
⁷ Area of buffer that is disturbed in square feet.
⁸ Area of buffer to be filled in square feet, such as for a road crossing.
⁹ Location and size in square feet of riparian corridor mitigation.

Exhibit F

WETLAND SUMMARY SHEET

Wetland Summary			Buffer Summary				Wetland Impacts		Mitigation Summary		
Label ¹	Category ²	Size ³	Required ⁴	Proposed ⁵	Increase ⁶ Reduce ⁷	Averaging ⁸	Fill ⁹	Paper Fill ¹⁰	Ratio ¹¹	Area ¹²	Location ¹³

¹ Wetland A, B, C, etc.
² Wetland category per City wetland classification system.
³ Area of wetland.
⁴ Required buffer width in feet per RCDG.
⁵ Proposed buffer width in feet.
⁶ Does the uniqueness of the wetland require an increased buffer? If so, what is the width in feet.
⁷ Is there a request to reduce the buffer width? If so, what is the width in feet.
⁸ Is buffer averaging being used? If so, what is the average buffer width in feet.
⁹ Amount of wetland fill.
¹⁰ Amount of paper fill.
¹¹ Required ratio for wetland mitigation per RCDG.
¹² Size of mitigation area.
¹³ Note location of mitigation area (keyed to the mitigation map).

Exhibit F

DATA FORM 1 (Revised) Routine Wetland Determination (WA State Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site:				Date:			
Applicant/owner:				County:			
Investigator(s):				State:			
Do Normal Circumstances exist on the site? yes no				S/T/R:			
Is the site significantly disturbed (atypical situation)? yes no				Community ID:			
Is the area a potential Problem Area? yes no				Transect ID:			
Explanation of atypical or problem area:				Plot ID:			
VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)							
Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
HYDROPHYTIC VEGETATION INDICATORS:							
% of dominants OBL, FACW, & FAC _____							
Check all indicators that apply & explain below:							
Visual observation of plant species growing in areas of prolonged inundation/saturation _____				Physiological/reproductive adaptations _____			
Morphological adaptations _____				Wetland plant database _____			
Technical Literature _____				Personal knowledge of regional plant communities _____			
Other (explain) _____							
Hydrophytic vegetation present? yes no							
Rationale for decision/Remarks:							
HYDROLOGY							
Is it the growing season? yes no				Water Marks: yes no		Sediment Deposits: yes no	
Based on: _____ soil temp (record temp _____)				on _____		Drift Lines: yes no	
other (explain) _____						Drainage Patterns: yes no	
Dept. of inundation: _____ inches				Oxidized Root (live roots) Channels <12 in. yes no		Local Soil Survey: yes no	
Depth to free water in pit: _____ inches				FAC Neutral: yes no		Water-stained Leaves yes no	
Depth to saturated soil: _____ inches							
Check all that apply & explain below:				Other (explain):			
Stream, Lake or gage data: _____							
Aerial photographs: _____ Other: _____							
Wetland hydrology present? yes no							
Rationale for decision/Remarks:							

Exhibit F

<u>SOILS</u>						
Map Unit Name _____ (Series & Phase)				Drainage Class _____		
Taxonomy (subgroup) _____				Field observations confirm Yes No mapped type?		

<u>Profile Description</u>						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)

Hydric Soil Indicators: (check all that apply)	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma (=1) matrix	<input type="checkbox"/> Matrix chroma ≤ 2 with mottles <input type="checkbox"/> Mg or Fe Concretions <input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on National/Local Hydric Soils List <input type="checkbox"/> Other (explain in remarks)

Hydric soils present? yes no Rationale for decision/Remarks:

<u>Wetland Determination</u> (circle)			
Hydrophytic vegetation present?	yes	no	Is the sampling point within a wetland?
Hydric soils present?	yes	no	yes no
Wetland hydrology present?	yes	no	

Rationale/Remarks:

NOTES:

Exhibit F

Data Form 2: Atypical Situations

Applicant Name: _____ Applicant Number: _____ Project Name: _____
Location: _____ Plot Number: _____ Date: _____

A. Vegetation:

1. Type of Alteration: _____

2. Effect on Vegetation: _____

3. Previous Vegetation: _____
(Attach documentation) _____

4. Hydrophytic Vegetation? Yes _____ No _____

B. Soils:

1. Type of Alteration: _____

2. Effect on Soils: _____

3. Previous Soils: _____
(Attach documentation) _____

4. Hydric Soils? Yes _____ No _____

C. Hydrology:

1. Type of Alteration: _____

2. Effect on Hydrology: _____

3. Previous Hydrology: _____
(Attach documentation) _____

4. Wetland Hydrology? Yes _____ No _____
Characterized By: _____

Exhibit F

Wetland name or number _____

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): _____ Date of site visit: _____

Rated by _____ Trained by Ecology? Yes ___ No ___ Date of training _____

SEC: ___ TOWNSHIP: ___ RANGE: ___ Is S/T/R in Appendix D? Yes ___ No ___

Map of wetland unit: Figure _____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III ___ IV ___

Category I = Score ≥ 70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions

Score for Hydrologic Functions

Score for Habitat Functions

TOTAL score for Functions

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ___

Final Category (choose the “highest” category from above)

--

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	
Natural Heritage Wetland	Riverine	
Bog	Lake-fringe	
Mature Forest	Slope	
Old Growth Forest	Flats	
Coastal Lagoon	Freshwater Tidal	
Interdunal		
None of the above	Check if unit has multiple HGM classes present	

Exhibit F

Wetland name or number _____

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Exhibit F

Wetland name or number _____

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

NO – go to 2

YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe** **NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4

YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

___ The wetland is on a slope (*slope can be very gradual*),

___ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

___ The water leaves the wetland **without being impounded**?

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).

NO - go to 5

YES – The wetland class is **Slope**

Exhibit F

Wetland name or number _____

5. Does the entire wetland unit meet all of the following criteria?

_____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

_____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 YES - The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. This means that any outlet, if present, is higher than the interior of the wetland.

NO - go to 7 YES - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO - go to 8 YES - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Exhibit F

Wetland name or number _____

D Depressional and Flats Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		(only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	<p>D 1.1 Characteristics of surface water flows out of the wetland:</p> <p>Unit is a depression with no surface water leaving it (no outlet) points = 3</p> <p>Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2</p> <p>Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 1</p> <p>Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1</p> <p>(If ditch is not permanently flowing treat unit as "intermittently flowing")</p> <p>Provide photo or drawing</p>	Figure ____
D	<p>S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>)</p> <p>YES points = 4</p> <p>NO points = 0</p>	
D	<p>D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)</p> <p>Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5</p> <p>Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3</p> <p>Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1</p> <p>Wetland has persistent, ungrazed vegetation < 1/10 of area points = 0</p> <p>Map of Cowardin vegetation classes</p>	Figure ____
D	<p>D1.4 Characteristics of seasonal ponding or inundation.</p> <p><i>This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.</i></p> <p>Area seasonally ponded is > 1/2 total area of wetland points = 4</p> <p>Area seasonally ponded is > 1/4 total area of wetland points = 2</p> <p>Area seasonally ponded is < 1/4 total area of wetland points = 0</p> <p>Map of Hydroperiods</p>	Figure ____
D	<p>Total for D 1</p> <p><i>Add the points in the boxes above</i></p>	
D	<p>D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?</p> <p>Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i></p> <ul style="list-style-type: none"> — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other _____ <p>YES multiplier is 2 NO multiplier is 1</p>	(see p. 44)
D	<p>TOTAL - Water Quality Functions</p> <p>Multiply the score from D1 by D2</p> <p><i>Add score to table on p. 1</i></p>	multiplier _____

Exhibit F

Wetland name or number

[illegible]

Exhibit F

Wetland name or number _____

R Riverine and Freshwater Tidal Fringe Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		(only 1 score per box)
R	R 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.52)
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland points = 8 Depressions cover > 1/2 area of wetland points = 4 If depressions > 1/2 of area of unit draw polygons on aerial photo or map Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0	Figure ____
R	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): Trees or shrubs > 2/3 the area of the unit points = 8 Trees or shrubs > 1/3 area of the unit points = 6 Ungrazed, herbaceous plants > 2/3 area of unit points = 6 Ungrazed herbaceous plants > 1/3 area of unit points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit points = 0 Aerial photo or map showing polygons of different vegetation types	Figure ____
R	Add the points in the boxes above	
R	R 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 feet of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality — Other _____ YES multiplier is 2 NO multiplier is 1	(see p.53)
R	TOTAL - Water Quality Functions Multiply the score from R 1 by R 2 Add score to table on p. 1	multiplier _____
Comments		

Exhibit F

Wetland name or number _____

R Riverine and Freshwater Tidal Fringe Wetlands		Points (only 1 score per box)
HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion		
	R 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.54)
R	<p>R 3.1 Characteristics of the overbank storage the unit provides: <i>Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(average width of stream between banks).</i> If the ratio is more than 20 points = 9 If the ratio is between 10 – 20 points = 6 If the ratio is 5 - <10 points = 4 If the ratio is 1 - <5 points = 2 If the ratio is < 1 points = 1</p> <p>Aerial photo or map showing average widths</p>	Figure ____
R	<p>R 3.2 Characteristics of vegetation that slow down water velocities during floods: <i>Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.</i> (polygons need to have >90% cover at person height NOT Cowardin classes): Forest or shrub for >1/3 area OR herbaceous plants > 2/3 area points = 7 Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 Vegetation does not meet above criteria points = 0</p> <p>Aerial photo or map showing polygons of different vegetation types</p>	Figure ____
R	Add the points in the boxes above	
R	<p>R 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. <i>Note which of the following conditions apply.</i> — There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. — There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding — Other _____ <i>(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)</i> YES multiplier is 2 NO multiplier is 1</p>	(see p.57)
R	<p>TOTAL - Hydrologic Functions Multiply the score from R 3 by R 4 <i>Add score to table on p. 1</i></p>	multiplier _____

Comments

Exhibit F

Wetland name or number _____

L Lake-fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		Points (only 1 score per box)
L	L 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.59)
L	L 1.1 Average width of vegetation along the lakeshore (use polygons of Cowardin classes): Vegetation is more than 33ft (10m) wide points = 6 Vegetation is more than 16 (5m) wide and <33ft points = 3 Vegetation is more than 6ft (2m) wide and <16 ft points = 1 Vegetation is less than 6 ft wide points = 0 Map of Cowardin classes with widths marked	Figure ____
L	L 1.2 Characteristics of the vegetation in the wetland: choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed. Cover of herbaceous plants is >90% of the vegetated area points = 6 Cover of herbaceous plants is >2/3 of the vegetated area points = 4 Cover of herbaceous plants is >1/3 of the vegetated area points = 3 Other vegetation that is not aquatic bed or herbaceous covers > 2/3 unit points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area points = 1 Aquatic bed vegetation and open water cover > 2/3 of the unit points = 0 Map with polygons of different vegetation types	Figure ____
L	Add the points in the boxes above	
L	L 2. Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. — Wetland is along the shores of a lake or reservoir that does not meet water quality standards — Grazing in the wetland or within 150ft — Polluted water discharges to wetland along upland edge — Tilled fields or orchards within 150 feet of wetland — Residential or urban areas are within 150 ft of wetland — Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore) — Power boats with gasoline or diesel engines use the lake — Other _____ YES multiplier is 2 NO multiplier is 1	(see p.61) multiplier _____
L	TOTAL - Water Quality Functions Multiply the score from L1 by L2 Add score to table on p. 1	

Comments

Exhibit F

Wetland name or number _____

L Lake-fringe Wetlands		Points (only 1 score per box)
HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce shoreline erosion		
L	L 3. Does the wetland unit have the <u>potential</u> to reduce shoreline erosion?	(see p.62)
L	<p>L 3 Distance along shore and average width of Cowardin classes along the lakeshore (do not include aquatic bed): (choose the highest scoring description that matches conditions in the wetland)</p> <p>> ¾ of distance is shrubs or forest at least 33 ft (10m) wide points = 6</p> <p>> ¾ of distance is shrubs or forest at least 6 ft. (2 m) wide points = 4</p> <p>> ¼ distance is shrubs or forest at least 33 ft (10m) wide points = 4</p> <p>Vegetation is at least 6 ft (2m) wide (any type except aquatic bed) points = 2</p> <p>Vegetation is less than 6 ft (2m) wide (any type except aquatic bed) points = 0</p> <p>Aerial photo or map with Cowardin vegetation classes</p>	Figure ____
L	Record the points from the box above	
L	<p>L 4. Does the wetland unit have the <u>opportunity</u> to reduce erosion?</p> <p>Are there features along the shore that will be impacted if the shoreline erodes? Note which of the following conditions apply.</p> <ul style="list-style-type: none"> — There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. — There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests other wetlands) than can be damaged by shoreline erosion — Other _____ <p>YES multiplier is 2 NO multiplier is 1</p>	(see p.63) multiplier
L	<p>TOTAL - Hydrologic Functions Multiply the score from L 3 by L 4</p> <p>Add score to table on p. 1</p>	
Comments		

Exhibit F

Wetland name or number _____

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		Points (only 1 score per box)
S	S 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.64)
S	S 1.1 Characteristics of average slope of unit: Slope is 1% or less (<i>a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance</i>) points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) YES = 3 points NO = 0 points	
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: <i>Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.</i> Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > 1/2 of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ____
S	Total for S 1 <i>Add the points in the boxes above</i>	
S	S 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland — Tilled fields, logging, or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other _____ YES multiplier is 2 NO multiplier is 1	(see p.67) multiplier _____
S	TOTAL - Water Quality Functions Multiply the score from S1 by S2 <i>Add score to table on p. 1</i>	

Comments

Exhibit F

Wetland name or number _____

S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion		Points (only 1 score per box)
	S 3. Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?	<i>(see p.68)</i>
S	<p>S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)</p> <p>Dense, uncut, rigid vegetation covers > 90% of the area of the wetland. points = 6</p> <p>Dense, uncut, rigid vegetation > 1/2 area of wetland points = 3</p> <p>Dense, uncut, rigid vegetation > 1/4 area points = 1</p> <p>More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0</p>	
S	<p>S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows:</p> <p>The slope wetland has small surface depressions that can retain water over at least 10% of its area.</p> <p>YES points = 2</p> <p>NO points = 0</p>	
S	Add the points in the boxes above	
S	<p>S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?</p> <p>Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note which of the following conditions apply.</p> <p>— Wetland has surface runoff that drains to a river or stream that has flooding problems</p> <p>— Other _____</p> <p>(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)</p> <p>YES multiplier is 2 NO multiplier is 1</p>	<p><i>(see p. 70)</i></p> <p>multiplier</p> <p>_____</p>
S	<p>TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4</p> <p>Add score to table on p. 1</p>	
Comments		

Exhibit F

Wetland name or number

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat		Points (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?		
H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <input type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation structures that qualify. If you have: <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div>Map of Cowardin vegetation classes</div> <div> 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0 </div> </div>		Figure _____
H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) <input type="checkbox"/> Permanently flooded or inundated <input type="checkbox"/> Seasonally flooded or inundated <input type="checkbox"/> Occasionally flooded or inundated <input type="checkbox"/> Saturated only <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake-fringe wetland = 2 points <input type="checkbox"/> Freshwater tidal wetland = 2 points <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div></div> <div> 4 or more types present points = 3 3 types present points = 2 2 types present point = 1 1 type present points = 0 </div> </div> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div></div> <div>Map of hydroperiods</div> </div>		Figure _____
H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft ² . (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle If you counted: <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div> > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0 </div> </div> List species below if you want to:		

Total for page

Exhibit F

Wetland name or number _____


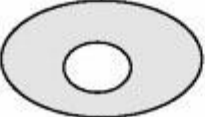

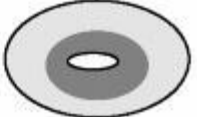


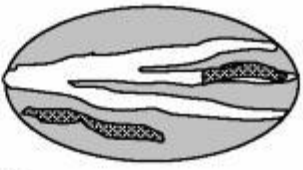
<p>H 1.4. Interspersion of habitats (<i>see p. 76</i>)</p> <p>Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="text-align: center;">     </div> <p>None = 0 points Low = 1 point Moderate = 2 points</p> <div style="text-align: center;">    </div> <p>High = 3 points [riparian braided channels]</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p>	<p>Figure _____</p>
<p>H 1.5. Special Habitat Features: (<i>see p. 77</i>)</p> <p>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <p>___ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).</p> <p>___ Standing snags (diameter at the bottom > 4 inches) in the wetland</p> <p>___ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</p> <p>___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>)</p> <p>___ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (<i>structures for egg-laying by amphibians</i>)</p> <p>___ Invasive plants cover less than 25% of the wetland area in each stratum of plants</p> <p>NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	
<p>H 1. TOTAL Score - potential for providing habitat</p> <p>Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	<div style="border: 1px dashed black; width: 100px; height: 40px;"></div>
<p>Comments</p>	

Exhibit F

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?		
H 2.1 Buffers (see p. 80) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."		Figure _____
<ul style="list-style-type: none"> — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5 — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4 — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4 — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference. Points = 3 — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2 — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2 — Heavy grazing in buffer. Points = 1 — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) Points = 0. — Buffer does not meet any of the criteria above. Points = 1 <p style="text-align: right;">Aerial photo showing buffers</p>		
H 2.2 Corridors and Connections (see p. 81) H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor). YES = 4 points (go to H 2.3) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = 1 point NO = 0 points		

Total for page _____

Exhibit F

Wetland name or number _____

<p>H 2.3 Near or adjacent to other priority habitats listed by WDFW (<i>see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm</i>)</p> <p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).</p> <p><input type="checkbox"/> Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> Old-growth/Mature forests: (<i>Old-growth west of Cascade crest</i>) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (<i>Mature forests</i>) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>).</p> <p><input type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).</p> <p><input type="checkbox"/> Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (<i>full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A</i>).</p> <p><input type="checkbox"/> Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.</p> <p style="padding-left: 40px;">If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points</p> <p><i>Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)</i></p>	
---	--

Exhibit F

Wetland name or number _____

<p>H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (<i>see p. 84</i>)</p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p>The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p>There is at least 1 wetland within ½ mile. points = 2</p> <p>There are no wetlands within ½ mile. points = 0</p>	
<p style="text-align: right;">H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	
<p style="text-align: right;">TOTAL for H 1 from page 14</p>	
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	

Exhibit F

Wetland name or number

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i></p> <p>SC 1.0 Estuarine wetlands (see p. 86)</p> <p>Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. <p>YES = Go to SC 1.1 NO ____</p>	
<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <p>YES = Category I NO go to SC 1.2</p>	Cat. I
<p>SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. 	Cat. I Cat. II Dual rating I/II

Exhibit F

Wetland name or number _____

<p>SC 2.0 Natural Heritage Wetlands <i>(see p. 87)</i> Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? <i>(this question is used to screen out most sites before you need to contact WNHP/DNR)</i> S/T/R information from Appendix D ____ or accessed from WNHP/DNR web site ____</p> <p>YES ____ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ____</p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ____ not a Heritage Wetland</p>	<p>Cat. I</p>
<p>SC 3.0 Bogs <i>(see p. 87)</i> Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 No - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog. <ol style="list-style-type: none"> 1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)? 2. YES = Category I No ____ Is not a bog for purpose of rating 	<p>Cat. I</p>

Exhibit F

Wetland name or number _____

<p>SC 4.0 Forested Wetlands (see p. 90) Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <ul style="list-style-type: none"> — Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. <p>YES = Category I NO ___ not a forested wetland with special characteristics</p>	<p>Cat. I</p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon <i>(needs to be measured near the bottom)</i> <p>YES = Go to SC 5.1 NO ___ not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 acre (4350 square feet) <p>YES = Category I NO = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>

Exhibit F

Wetland name or number _____

<p>SC 6.0 Interdunal Wetlands (see p. 93)</p> <p>Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p>YES - go to SC 6.1 NO __ not an interdunal wetland for rating</p> <p><i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?</p> <p>YES = Category II NO – go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?</p> <p>YES = Category III</p>	<p>Cat. II</p> <p>Cat. III</p>
<p>Category of wetland based on Special Characteristics</p> <p><i>Choose the "highest" rating if wetland falls into several categories, and record on p. 1.</i></p> <p>If you answered NO for all types enter "Not Applicable" on p.1</p>	

Exhibit F

CDG Update\Phase II rewrite\05 – Environmental\Code\3-1 Appendix D-2 Critical Areas.doc